

IN THE CLAIMS

Please **AMEND** claims 3-4, 6, 8-10, 12-14, 16-18, 20-22, 24-29, 31, 35-36, and 40-41.

Please **CANCEL** claims 1-2, 5, 7, 11, 15, 19, 23, 30, 32-34, 37-39, and 42.

1. (CANCELLED)

2. (CANCELLED)

3. (ORIGINAL) A halftoning method ~~according to claim 2, further comprising of~~
converting a multilevel input image into a binary image, comprising:

converting the multilevel value of a given noteworthy pixel of the multilevel input image
into a binary value while pixels of the multilevel input image are scanned successively;

diffusing a possible error, which has occurred in binary value with respect to the
noteworthy pixel, to unscanned pixels adjacent to the noteworthy pixel by one diffusion
technique;

changing the technique of said diffusing to another in accordance with a predetermined
manner as the scanning of the successive pixels of the multilevel input image progresses;

discriminating whether or not the noteworthy pixel is a pixel constituting part of a profile
of the multilevel input image; and

detecting the direction in which the profile of the multilevel input image extends with
respect to the noteworthy pixel, wherein

if the result of said discriminating is positive, in step (b), said changing comprises
changing the error diffusion technique from one to another, and values according to the
occurred error are added to the values of the unscanned pixels along the detected direction of
the profile as an exceptional process.

4. (CURRENTLY AMENDED) A ~~The~~ halftoning method according to ~~claim 1~~claim 3,
wherein ~~in step (c)~~ the error diffusion technique is changed for every pixel of the multilevel input
image.

5. (CANCELLED)

6. (CURRENTLY AMENDED) A ~~The~~ halftoning method according to ~~claim 2~~claim 3,

wherein said profile discriminating is carried out by calculating a profile value of the noteworthy pixel based on both the multilevel value of the noteworthy pixel and those of the adjacent pixels, and comparing the calculated profile value with a predetermined value.

7. (CANCELLED)

8. (CURRENTLY AMENDED) A-The halftoning method according to claim 4, wherein said profile discriminating is carried out by calculating a profile value of the noteworthy pixel based on both the multilevel value of the noteworthy pixel and those of the adjacent pixels, and comparing the calculated profile value with a predetermined value.

9. (CURRENTLY AMENDED) A-The halftoning method according to claim 5, wherein said profile discriminating is carried out by calculating a profile value of the noteworthy pixel based on both the multilevel value of the noteworthy pixel and those of the adjacent pixels, and comparing the calculated profile value with a predetermined value.

10. (CURRENTLY AMENDED) A-The halftoning method according to claim 6, wherein a two-dimensional digital filter dedicated to enhance the profile is used in said calculating of the profile value.

11. (CANCELLED)

12. (CURRENTLY AMENDED) A-The halftoning method according to claim 8, wherein a two-dimensional digital filter dedicated to enhancing the profile is used in said calculating of the profile value.

13. (CURRENTLY AMENDED) A-The halftoning method according to claim 9, wherein a two-dimensional digital filter dedicated to enhancing the profile is used in said calculating of the profile value.

14. (CURRENTLY AMENDED) A-The halftoning method according to claim 10, wherein said two-dimensional digital filter dedicated to enhancing the profile is a Laplacian filter.

15. (CANCELLED)

16. (CURRENTLY AMENDED) A-The halftoning method according to claim 12, wherein said two-dimensional digital filter dedicated to enhancing the profile is a Laplacian filter.

17. (CURRENTLY AMENDED) A-The halftoning method according to claim 13, wherein said two-dimensional digital filter dedicated to enhancing the profile is a Laplacian filter.

18. (CURRENTLY AMENDED) A-The halftoning method according to claim 10, wherein said two-dimensional digital filter dedicated to enhancing the profile is a Prewitt filter.

19. (CANCELLED)

20. (CURRENTLY AMENDED) A-The halftoning method according to claim 12, wherein said two-dimensional digital filter dedicated to enhancing the profile is a Prewitt filter.

21. (CURRENTLY AMENDED) A-The halftoning method according to claim 13, wherein said two-dimensional digital filter dedicated to enhancing the profile is a Prewitt filter.

22. (CURRENTLY AMENDED) A-The halftoning method according to claim 6, wherein the profile value is directly calculated by making addition and subtraction individually on the multilevel values of the noteworthy pixel and the adjacent pixels.

23. (CANCELLED)

24. (CURRENTLY AMENDED) A-The halftoning method according to claim 8, wherein the profile value is directly calculated by making addition and subtraction individually on the multilevel values of the noteworthy pixel and the adjacent pixels.

25. (CURRENTLY AMENDED) A-The halftoning method according to claim 9, wherein the profile value is directly calculated by making addition and subtraction individually on the multilevel values of the noteworthy pixel and the adjacent pixels.

26. (CURRENTLY AMENDED) A-The halftoning method according to ~~claim 1~~claim 3, wherein in said changing ~~step (e)~~, comprises changing the error diffusion technique ~~is changed~~

to another that is selected in a predetermined order from a plurality of error diffusion techniques.

27. (CURRENTLY AMENDED) A ~~The~~ halftoning method according to ~~claim 1~~claim 3, wherein in said changing ~~step (e)~~, comprises changing the error diffusion technique ~~is changed~~ to another that is selected at random from a plurality of error diffusion techniques.

28. (CURRENTLY AMENDED) A ~~The~~ halftoning method according to ~~claim 1~~claim 3, wherein

in said error diffusing ~~step (b)~~, the one error diffusion technique is a technique of proportionally distributing the occurred error to the plural unscanned pixels adjacent to the noteworthy pixel in accordance with ~~said~~a predetermined weighting pattern, and

in said technique changing ~~step (e)~~, the error diffusion technique is changed by changing said predetermined weighting pattern to another.

29. (CURRENTLY AMENDED) A ~~The~~ halftoning method according to ~~claim 2~~claim 3, wherein if a plurality of multilevel input images to be halftoned have an approximate profile, said discriminating is carried out for only one of the plural multilevel input images, and the result of said discriminating is used in halftoning the remaining multilevel input images.

30. (CANCELLED)

31. (CURRENTLY AMENDED) A ~~The~~ halftoning method according to claim 4, wherein if a plurality of multilevel input images to be halftoned have an approximate profile, said discriminating is carried out for only one of the plural multilevel input images, and the result of said discriminating is used in halftoning the remaining multilevel input images.

32. (CANCELLED)

33. (CANCELLED)

34. (CANCELLED)

35. (CURRENTLY AMENDED) A halftoning apparatus ~~according to claim 34~~, further comprising converting a multilevel input image into a binary image, comprising:

a binarizing section converting the multilevel value of a given noteworthy pixel of the multilevel input image into a binary value while pixels of the multilevel input image are scanned successively;

an error diffusing section diffusing a possible error, which has occurred in binary value with respect to the noteworthy pixel, to unscanned pixels adjacent to the noteworthy pixel by one diffusion technique;

an error diffusion technique changing section changing said one diffusion technique of said diffusing to another in accordance with a predetermined manner as the scanning of the successive pixels of the multilevel input image progresses;

a pixel-on-profile detection section discriminating whether or not the noteworthy pixel is a pixel constituting part of a profile of the multilevel input image; and

a direction-of-profile detection section for detecting the direction in which the profile of the multilevel input image extends with respect to the noteworthy pixel, wherein

if the result of said discriminating is positive, said error diffusion technique changing section changes the error diffusion technique from one to another and said error diffusion section performs an exceptional process of adding values according to the occurred error to the values of the unscanned pixels along the detected direction of the profile.

36. (CURRENTLY AMENDED) A ~~The~~ halftoning apparatus according to ~~claim~~ ~~33~~ claim 35, wherein said error diffusion technique changing section changes the error diffusion technique for every pixel of the multilevel input image.

37. (CANCELLED)

38. (CANCELLED)

39. (CANCELLED)

40. (CURRENTLY AMENDED) A computer-readable recording medium ~~according to claim 39, wherein said halftoning program instructs the computer to function also as in which a~~ halftoning program instructs a computer to execute a function of converting a multilevel input image into a binary image is recorded, wherein said halftoning program instructs the computer to function as follows:

a binarizing section converting the multilevel value of a given noteworthy pixel of the

multilevel input image into a binary value while pixels of the multilevel input image are scanned successively;

an error diffusing section diffusing a possible error, which has occurred in binary value with respect to the noteworthy pixel, to unscanned pixels adjacent to the noteworthy pixel by one diffusion technique;

an error diffusion technique changing section changing said one diffusion technique of said diffusing to another in accordance with a predetermined manner as the scanning of the successive pixels of the multilevel input image progresses;

a pixel-on-profile detection section for discriminating whether or not the noteworthy pixel is a pixel constituting part of a profile of the multilevel input image; and

a direction-of-profile detection section for detecting the direction in which the profile of the multilevel input image extends with respect to the noteworthy pixel, and wherein

if the result of said discriminating is positive, said halftoning program instructs the computer in such a manner that said error diffusion technique changing section changes the error diffusion technique from one to another and said error diffusion section performs an exceptional process of adding values according to the occurred error to the values of the unscanned pixels along the detected direction of the profile.

41. (CURRENTLY AMENDED) A-The computer-readable recording medium according to ~~claim 38~~claim 40, wherein said halftoning program instructs the computer in such a manner that said error diffusion technique changing section changes the error diffusion technique for every pixel of the multilevel input image.

42. (CANCELLED)